Support for Amendment

Method claims 1, 27, and 31 are amended to characterize a step of solidifying the molded detergent composition as a result of movement of the water of hydration from the hydrated component to the hydratable component. This amendment is supported by the specification at page 5, lines 2-4. In addition, claims 1, 27, and 31 are amended to characterize the result of solidifying the molded detergent composition as a solid under conditions of room temperature and atmospheric pressure. This amendment is supported by the specification at page 3, lines 15-19.

Claims 16, 29 and 33 are amended to characterize the molded detergent composition as a solid under conditions of room temperature and atmospheric pressure, and to characterize the solidification as a result of movement of the water of hydration from the hydrated component to the hydratable component. This amendment is also supported by the specification at page 3, lines 15-19, and page 5, lines 2-4.

It is submitted that no new matter is introduced by the above amendment, and entry thereof is requested. Upon entry, claims 1-34 are active in this application.

REMARKS

The invention relates to a method for manufacturing a molded detergent composition and to a molded detergent composition. The method for manufacturing a molded detergent composition includes steps of mixing a hydrated component and a hydratable component to provide a mixture, molding the mixture to provide a molded detergent composition, and solidifying the molded detergent composition as a result of movement of the water of hydration from the hydrated component to the hydratable component to provide the molded detergent composition as a solid under conditions of room temperature and atmospheric pressure and having a melting point greater than about 30°C. The hydrated component has a melting point below about 100°C and comprises a transhydration product of an anhydrous material and water of hydration, wherein the anhydrous material has a melting point greater than about 300°C. The hydratable component, if it includes any water at all, includes water at a level of less than about 2 wt.% based on the weight of the hydratable component. In addition, the hydratable component is

a component that successfully competes with the hydrated component for at least portion of the water of hydration provided as part of the hydrated component. According to independent claim 1, the step of mixing occurs without heating. According to independent claims 27 and 31, the method for manufacturing a molded detergent composition occurs in the presence of either an enzyme or a solvent.

The molded detergent composition according to the invention is provided as a result of the method for manufacturing a molded detergent composition. According to independent claim 16, the molded detergent composition is a result of mixing and molding a composition without heating during the steps of mixing and molding. Independent claims 29 and 33 refer to molded detergent compositions that include an enzyme or a solvent.

Although claims 27-34 do not explicitly require an absence of heating, it is clear from the Specification beginning at page 10, line 15, that enzymes and solvents can be considered heat sensitive materials and that these claims require an absence of heating to an extent that damages or removes the enzyme or the solvent. That is, these claims permit heating but not to an extent that damages the enzyme so that the molded detergent composition does not contain between about 0.01 wt.% and about 10 wt.% enzyme, or to an extent that causes removal of the solvent.

The Prior Art-Based Rejections

The outstanding Office Action includes four prior art-based rejections. All four prior art-based rejections are traversed, and each rejection is identified below.

The Rejection over Scepanski

Claims 6-26, 29, 30, 33 and 34 stand rejected under 35 U.S.C. § 103(a) over U.S. Patent No. 5,670,473 (Scepanski). This rejection is traversed.

Scepanski describes a method for forming a solid cleaning agent from hydrated forms of salts that includes heating and melting the hydrated forms of salts. The Examiner's attention is directed to Scepanski at column 3, lines 30-32 and lines 50-55. By providing the hydrated forms of salts as melts, it is submitted that the hydrated forms of salts are no longer hydrates. By melting the hydrated forms of salts, the crystalline structure of the hydrated forms of salts disappears and the water of hydration becomes free water. According to Scepanski,

solidification occurs after mixing in additional ingredients by allowing the composition to cool. See Scepanski at column 3, lines 40-43, and column 6, lines 25-27.

The solidification mechanism of Scepanski is not entirely clear. It is believed that as the composition cools, the salts rehydrate and solidify. In contrast, the present invention provides for solidification as a result of a competitive hydration reaction where water of hydration moves from the hydrated component to the hydratable component. This type of mechanism is not present according to Scepanski because the solidification process of Scepanski begins with a composition that does not contain water of hydration because the hydrated forms of salts are melted.

The outstanding Office Action recognizes that Scepanski fails to teach the claimed method for manufacturing a molded detergent composition. It is understood that the basis for the rejection over Scepanski is that the composition described by Scepanski inherently satisfies the limitations of the claimed molded detergent composition. It is submitted that this is not the case. According to the presently claimed molded detergent composition, the solidification results from movement of the water of hydration from the hydrated component to the hydratable component. In contrast, the solidification according to Scepanski results from cooling a melt. It is submitted that there is no reason to expect that the resulting solid described by Scepanski would satisfy the presently claimed molded detergent composition. Furthermore, it is submitted that one having ordinary skill in the art would not have received a suggestion to modify Scepanski to achieve the presently claimed molded detergent composition.

In view of the above comments, withdrawal of the rejection over Scepanski is requested.

Rejection over Schulz et al. '831

Claims 1-4, 6-22, and 25-30 stand rejected under 35 U.S.C. § 103(a) over U.S. Patent No. 5,674,831 (Schulz et al '831). This rejection is traversed.

Schulz et al. '831 describes a solid cleaning composition comprising a urea hardening agent and a cleaning agent. See Schulz et al. '831 at column 2, lines 28-32, and column 4, line 59 through column 5, line 29. In contrast to Schulz et al. '831, the presently claimed invention is directed at solidifying a molded detergent composition as a result of movement of the water of hydration from the hydrated component to the hydratable component. It is submitted that this type of hardening is not disclosed or suggested by Schulz et al. '831.

The outstanding Office Action relies upon Schulz et al. '831 for the disclosure of condensed phosphates that "may also assist, to a limited extent, in solidification of the composition by fixing the free water present in the composition as water of hydration." See Schulz et al. '831 at column 7, lines 33-35. It is submitted that this is not a disclosure of a competitive hydration reaction according to claimed invention. According to Schulz et al. '831, the condensed phosphate fixes free water as water of hydration. In contrast, according to the claimed invention, the hydrated component (which can be a phosphate) loses water of hydration as part of the solidification process. Accordingly, this disclosure by Schulz et al. '831 is a teaching away from the presently claimed invention.

The outstanding Office Action additionally refers to Schulz et al. '831 for the disclosure of a secondary alkaline source. According to Schulz et al. at column 8, lines 50-62, the secondary alkaline source can be available in either aqueous or powdered form. If the secondary alkaline source is available in aqueous form, the water present is not water of hydration because a solution is not a hydrate. Accordingly, Schulz et al. '831 fails to suggest providing their secondary alkaline source as a component having water of hydration that can be removed in a competitive hydration reaction to solidify a composition.

In view of the above comments withdrawal of the rejection over Schulz et al. '831 is requested.

Rejection over Rolando et al.

Claims 1-34 stand rejected under 35 U.S.C. § 103(a) over U.S. Patent No. 5,474,698 (Rolando et al.). This rejection is traversed.

Rolando et al. describe the use of a urea-hardening agent to solidify a cleaning composition. See Rolando et al. at column 4, line 60 through column 5, line 30. It is submitted that Rolando et al. fail to disclose or suggest solidification of a cleaning composition by a competitive hydration reaction between a hydrated component and a hydratable component.

The outstanding Office Action refers to Rolando et al. at column 7, line 36 through column 8, line 1 for the disclosure of condensed phosphates that "may also assist, to a limited extent, in solidification of the composition by fixing the free water present in the composition as water of hydration." Similar to the discussion above with respect to Schulz et al. '831, this is not a disclosure of a competitive hydration reaction according to the claimed invention. The

condensed phosphate fixes free water as water of hydration. In contrast, according to the claimed invention, the hydrated component (which can be a phosphate) loses water of hydration as part of the solidification process. Accordingly, this disclosure by Rolando et al. is a teaching away from the presently claimed invention.

The outstanding Office Action additionally refers to Rolando et al. at column 6, lines 19-32, for the disclosure of a secondary alkaline source. It is pointed out that Rolando et al. fail to disclose the secondary alkaline source as a hydrated component. It is submitted that Rolando et al. fail to suggest solidifying a cleaning composition as a result of a competitive hydration reaction between a hydrated component and a hydratable component according to the claimed invention.

In view of the above comments, withdrawal of the rejection over Rolando et al. is requested.

Rejection over Schulz et al. '444

Claims 1-4, 6-22, and 25-30 stand rejected under 35 U.S.C. § 103(a) over U.S. Patent No. 6,060,444 (Schulz et al. '444). This rejection is traversed.

Schulz et al. '444 describes a cleaning composition that is solidified by various solidifying agents including polyethylene glycol. See Schulz et al. '444 at column 1, lines 10-19, and column 6, line 50 through column 8, line 38. It is submitted that Schulz et al. '444 fail to disclose or suggest solidifying a mold detergent composition as a result of movement of water of hydration from a hydrated component to a hydratable component according to the presently claimed invention.

The outstanding Office Action appears to rely upon the disclosure of a condensed phosphate as an aid in solidification by fixing free water as a water of hydration. See Schulz et al. '444 at column 8, line 49 through column 9, line 4. This disclosure is not a competitive hydration reaction where water of hydration in the condensed phosphate moves to a hydratable component to cause solidification. Instead, this disclosure by Schulz et al. '444 is a disclosure of the ability of a condensed phosphate to remove free water and transform it to water of hydration. This is essentially opposite to the presently claimed invention where, if a phosphate is used, it is provided as a hydrated component, and it loses water of hydration as a result of a competitive hydration reaction.

The outstanding Office Action additionally relies upon the disclosure by Schulz et al. '444 of anhydrous sodium carbonate or anhydrous sodium sulfate. See Schulz et al. '444 at column 7, line 66 through column 8, line 16. Again, this is a disclosure that anhydrous sodium carbonate and anhydrous sodium sulfate can hydrate in the presence of free water to bind the free water. In contrast, sodium carbonate and sodium sulfate are described by the presently claimed invention as exemplary components that can be provided as the hydrated component. See the specification at page 7, lines 4-9. Thus, by losing water of hydration, the cleaning composition according to the invention solidifies. Clearly, the teaching by Schulz et al. '444 of the use of anhydrous sodium carbonate and anhydrous sodium sulfate is a teaching away from the presently claimed invention.

In view of the above comments, withdrawal of the rejection over Schulz et al. '444 is requested.

It is believed that this application is in condition for allowance. Early notice to this effect is earnestly solicited.

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the Claims

The claims have been amended as follows:

1. (Twice Amended) A method for manufacturing a molded detergent composition, the method comprising steps of:

(a) mixing a hydrated component and a hydratable component, without heating, to provide a mixture:

(i) the hydrated component having a melting point below about 100° C and comprising a transhydration product of an anhydrous material and water of hydration, the anhydrous material having a melting point greater than about 300° C;

(ii) the hydratable component comprising water, if present at all, at a level of less than about 2 wt.% based on the weight of the hydratable component; and

(iii) the hydratable component being a component which successfully competes with the hydrated component for at least a portion of the water of hydration; [and]

(b) molding the mixture to provide a molded detergent composition [having a melting point greater than about 30° C]; and

(c) solidifying the molded detergent composition as a result of movement of the water of hydration from the hydrated component to the hydratable component to provide the molded detergent composition as a solid under conditions of room temperature and atmospheric pressure and having a melting point greater than about 30°C.

16. (Twice Amended) A molded detergent composition comprising:

a result of mixing and molding a composition without heating, the composition comprising:

(a) hydrated component and a hydratable component;

(b) the hydrated component having a melting point below about 100° C and comprising a transhydration product of an anhydrous material and water of hydration, the anhydrous material having a melting point greater than about 300° C;

(c) the hydratable component comprising water, if present at all, at a level of less than about 2 wt.% based on the weight of the hydratable component;

(d) the hydratable component being a component which successfully competes with the hydrated component for at least a portion of the water of hydration; and

(e) the molded detergent composition being provided as a solid under conditions of room temperature and atmospheric pressure and having a melting point greater than about 30°C, wherein solidification results from movement of the water of hydration from the hydrated component to the hydratable component.

27. (Amended) A method for manufacturing a molded detergent composition, the method comprising steps of:

(a) mixing a hydrated component and a hydratable component to provide a mixture:

(i) the hydrated component having a melting point below about 100° C and comprising a transhydration product of an anhydrous material and water of hydration, the anhydrous material having a melting point greater than about 300° C;

(ii) the hydratable component comprising water, if present at all, at a level of less than about 2 wt.% based on the weight of the hydratable component;

(iii) the hydratable component being a component which successfully competes with the hydrated component for at least a portion of the water of hydration; and

(iv) the mixture comprising enzyme in an amount of between about 0.01 wt.% and about 10 wt.% based on the weight of the mixture[.];

(b) molding the mixture to provide a molded detergent composition [having a melting point greater than about 30° C]; and

(c) solidifying the molded detergent composition as a result of movement of the water of hydration from the hydrated component to the hydratable component to provide the molded detergent composition as a solid under conditions of room temperature and atmospheric pressure and having a melting point greater than about 30°C.

29. (Amended) A molded detergent composition comprising:

a result of mixing and molding a composition comprising:

(a) hydrated component and a hydratable component;

(b) the hydrated component having a melting point below about 100° C and comprising a transhydration product of an anhydrous material and water of hydration, the anhydrous material having a melting point greater than about 300° C;

(c) the hydratable component comprising water, if present at all, at a level of less than about 2 wt.% based on the weight of the hydratable component;

(d) the hydratable component being a component which successfully competes with the hydrated component for at least a portion of the water of hydration;

(e) the molded detergent composition <u>being provided as a solid under conditions of room temperature and atmospheric pressure and</u> having a melting point greater than about 30°C<u>, wherein solidification results from movement of the water of hydration from the hydrated component to the hydratable component</u>; and

(f) enzyme in an amount of between about 0.01 wt.% and about 10 wt.% based on the weight of the composition.

31. (Amended) A method for manufacturing a molded detergent composition, the method comprising steps of:

(a) mixing a hydrated component and a hydratable component to provide a mixture:

(i) the hydrated component having a melting point below about 100° C and comprising a transhydration product of an anhydrous material and water of hydration, the anhydrous material having a melting point greater than about 300° C;

(ii) the hydratable component comprising water, if present at all, at a level of less than about 2 wt.% based on the weight of the hydratable component;

(iii) the hydratable component being a component which successfully competes with the hydrated component for at least a portion of the water of hydration; and

(iv) the mixture comprising solvent containing volatile organic compounds;

(b) molding the mixture to provide a molded detergent composition [having a melting point greater than about 30° C]; and

(c) solidifying the molded detergent composition as a result of movement of the water of hydration from the hydrated component to the hydratable component to provide the molded detergent composition as a solid under conditions of room temperature and atmospheric pressure and having a melting point greater than about 30°C.

33. (Amended) A molded detergent composition comprising:
a result of mixing and molding a composition comprising:

(a) hydrated component and a hydratable component;

(b) the hydrated component having a melting point below about 100° C and comprising a transhydration product of an anhydrous material and water of hydration, the anhydrous material having a melting point greater than about 300° C;

(c) the hydratable component comprising water, if present at all, at a level of less than about 2 wt.% based on the weight of the hydratable component;

(d) the hydratable component being a component which successfully competes with the hydrated component for at least a portion of the water of hydration;

(e) the molded detergent composition being provided as a solid under conditions of room temperature and atmospheric pressure and having a melting point greater than about 30°C, wherein solidification results from movement of the water of hydration from the hydrated component to the hydratable component; and

(f) the composition comprising solvent containing volatile organic compounds.